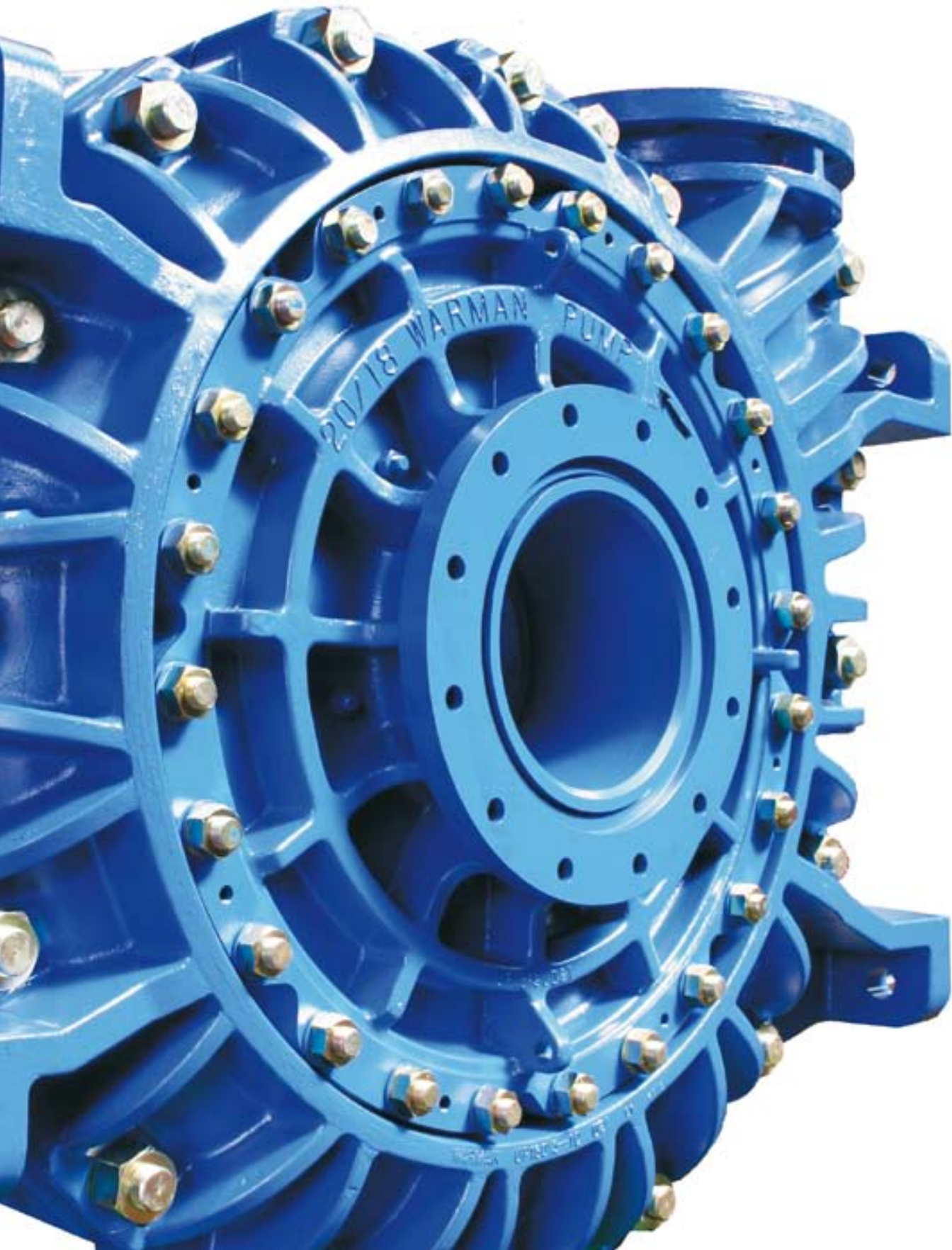


WARMAN®
Centrifugal Slurry Pumps

Slurry
Equipment
Solutions



AH Heavy Duty Slurry Pump



Weir Minerals are specialists in delivering and supporting Slurry Equipment Solutions including pumps, hydrocyclones, valves and wear resistant linings for global mining and mineral processing, the power sector, and general industry.

We use our specialist slurry knowledge and experience from around the world to deliver reliable product and service solutions.

Our global network ensures that we are close to our customer wherever they base their local operations.

We strive to understand the customer's needs and to reduce their total cost of equipment ownership.

We aim to lead the market in application expertise, service-support and product development.

The strength of Weir Minerals products lies in the superiority of our hydraulic designs and wear and corrosion resistant materials.

Weir Minerals has invested heavily in an ongoing programme of research and development which focuses on the areas of hydraulic design, materials technology and shaft sealing.

Nowhere is this development more apparent than in the flagship of the Weir Minerals range, the Warman AH Heavy Duty Slurry Pump which now offers:

- **Enhanced efficiencies**
- **lower energy costs**
- **Enhanced abrasion and corrosion resistance**
- **longer life**
- **Enhanced shaft sealing**
- **no need for external sealing water**



Right : A Warman 4/3 AH heavy duty slurry pump.

Below: Three dimensional CAD modelling of pump components in our global design centre.

Bottom / bottom right : Weir Minerals Sales Engineers and Agents on site providing after-care and monitoring pump performance.



World class manufacturing

Underlying our product capability is our introduction of the latest CAD CAM techniques and the implementation of lean manufacturing principles, keeping Weir Minerals at the forefront of manufacturing technology, delivering direct customer benefits.

Weir Minerals products are manufactured on all five continents by member companies of the Weir Minerals Division and Licensees in strategic locations around the world.

Worldwide sales and service

Weir Minerals has the geographical presence to service all the major minerals markets around the world.

In Europe and the Middle East, Weir Minerals sales offices are located in Belgium, the Czech Republic, Finland, France, Germany, Hungary, Italy, Poland, Russia, Romania, Sweden, the U.A.E. , the UK and in the Ukraine. Supported by a comprehensive network of agents and representatives they provide professional, qualified technical assistance and service.

Meeting international standards

The quality management systems of Weir Minerals Europe Limited in the UK are accredited to BS EN ISO 9001:2000 and our Environmental Management Systems are accredited to BS EN ISO 14001:1996.

Our customers range from the world's largest mining and minerals multinationals to single pumpset operators.

Weir Minerals capability supports an array of customer specifications with products easily adaptable to meet specific process requirements. We build close, long-term partnerships through which we are able to help customers achieve the lowest cost of ownership.

Mining & Mineral Processing

The slow running speeds of the Warman AH Heavy Duty Slurry Pump, together with the comprehensive choice of abrasion resistant alloys and elastomers, provide unrivalled performance and service life for all abrasive mining and minerals processing applications.

Chemical Process

The interchangeability of alloy and elastomer components in the same pump casing, together with a wide range of mechanical seals, make the Warman AH Heavy Duty Slurry Pump the most flexible choice for the chemical plant environment.



Flue Gas Desulphurisation

The new generation of specially formulated abrasion and corrosion resistant alloys, together with the very latest elastomer technology, positions Weir Minerals firmly as a major supplier of pumps to the FGD industry.

Sugar Processing

The premium reliability and service life of the Warman AH Heavy Duty Slurry Pump is specified by many sugar plant engineers worldwide where uninterrupted pump operation during the sugar campaign is a critical requirement.

Sand & Gravel

Designed for easy and simple strip down and re-assembly, the Warman AH Heavy Duty Slurry Pump minimises downtime, making it the ideal choice where installed stand by pumps are not available.

Oil & Gas Exploration

Over a number of years we have developed the proven design of the Warman AH Heavy Duty Slurry Pump ranges to suit the specific demands of offshore applications. We can now offer the most reliable top side solution to erosive wear.

Industrial Applications

Wherever abrasive solids are causing premature failure of pumps, the Warman AH Heavy Duty Slurry Pump range has the right combination of performance, wear life and reliability to bring the customer the lowest cost of ownership.

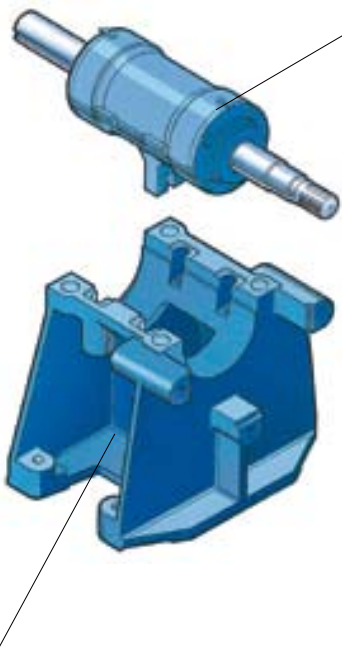


Top: High pressure 20/18 AH slurry pump ready for installation at the Minera Escondida new tailing line.

Top left: 8/6 AH pumps on FGD duty in Holland.

Bottom left: Four 14/12 AH slurry pumps in series at Siilinjärvi mine in Finland.

Bottom right: AH slurry pump in a German sugar plant.

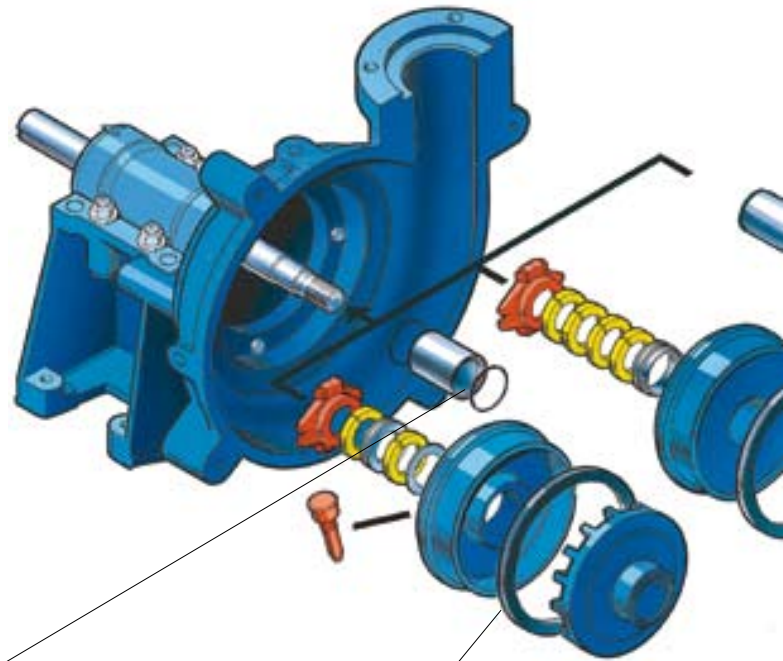


Extended bearing life ...

... is achieved through the use of a large diameter shaft with the shortest possible overhang with heavy duty roller bearings housed in a removable bearing cartridge.

Simple impeller adjustment ...

... is achieved using a very robust one piece casting that cradles the bearing cartridge assembly with a conveniently located adjustment facility and also supports the pump wet end using a minimum number of through bolts.



An easily removable shaft sleeve ...

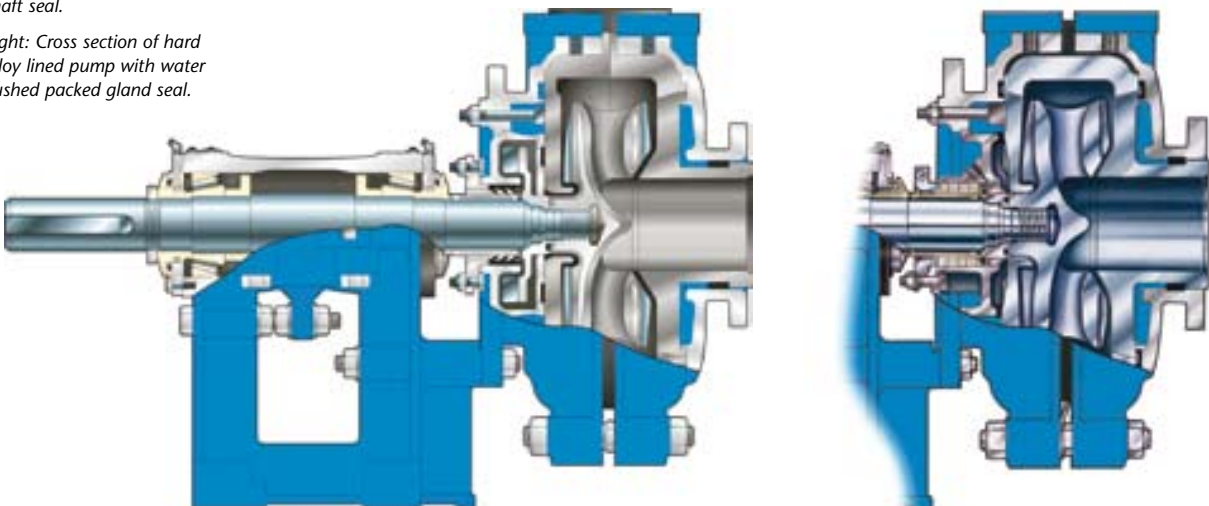
... manufactured in either hardened steel or ceramic coated steel with o-ring seals at both ends protects the shaft from abrasive or corrosive contaminants.

External gland sealing water is avoided ...

... in most applications by utilising the new "Hi-Seal" expeller design or a mechanical seal. Where flushing water is unavoidable restricted flow glands keep this to a minimum.

Left: Cross section of elastomer lined pump with centrifugal shaft seal.

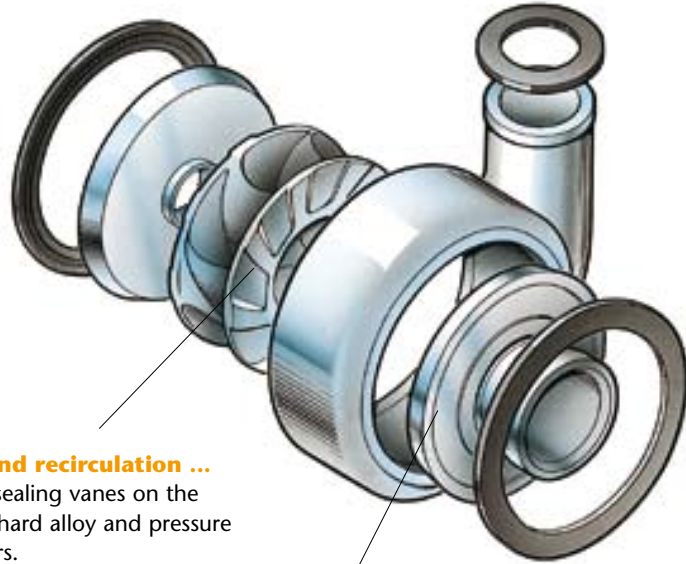
Right: Cross section of hard alloy lined pump with water flushed packed gland seal.



The Warman AH Heavy Duty Slurry Pump

Mechanical seals ...

... are also available for most applications, single or double mechanical seals can be offered as an alternative to a conventional seal.



Reduced seal pressure and recirculation ...

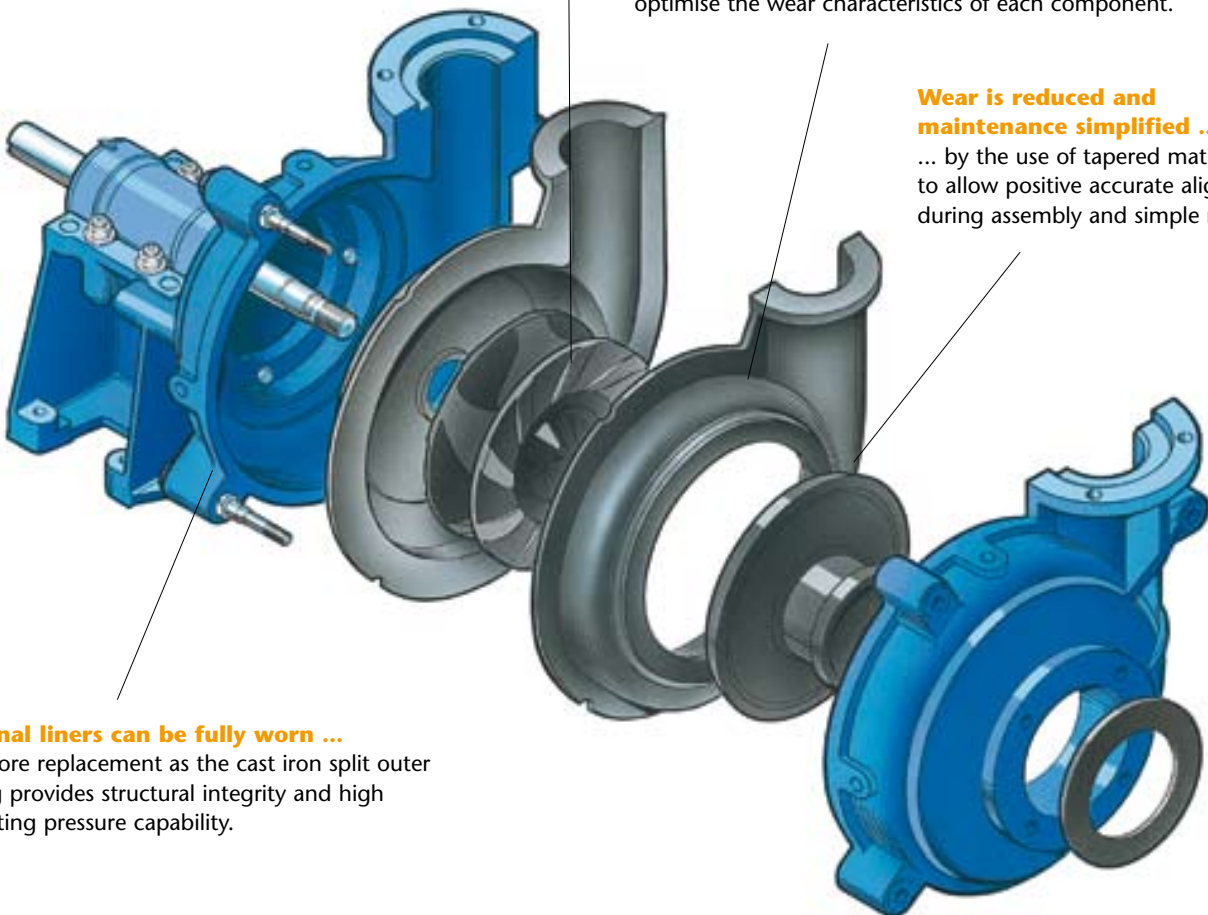
... is achieved by the deep sealing vanes on the front and back of both the hard alloy and pressure moulded elastomer impellers.

The best material for each application ...

... can be chosen from the wide range of hard alloy and pressure moulded materials, enabling us to optimise the wear characteristics of each component.

Wear is reduced and maintenance simplified ...

... by the use of tapered mating faces to allow positive accurate alignment during assembly and simple removal.



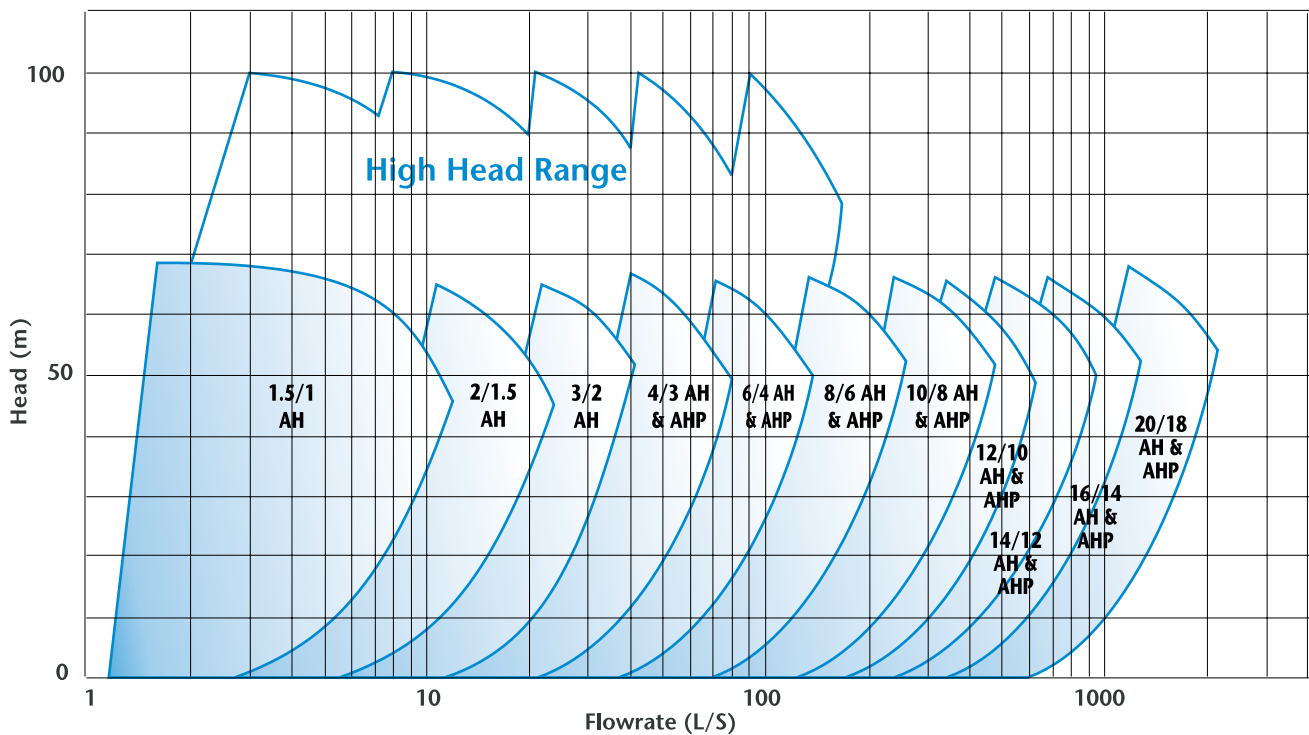
Internal liners can be fully worn ...

... before replacement as the cast iron split outer casing provides structural integrity and high operating pressure capability.

Quick selection chart

Warman AH Heavy Duty Slurry Pumps - Quick Selection Chart

Approximate clear water performance - to be used for preliminary selection only



Product Information Software

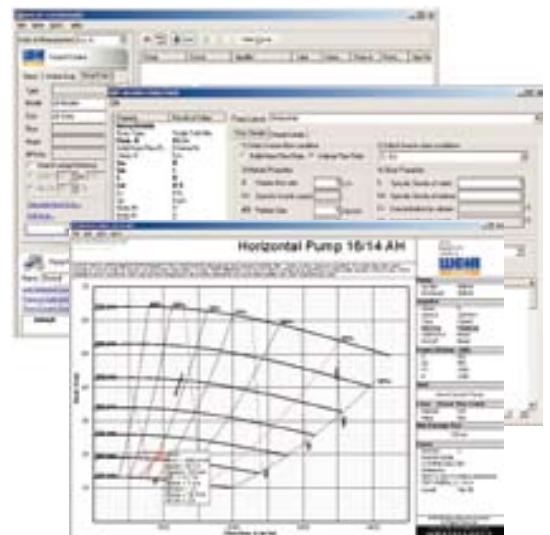
Weir Minerals product information software is available for download from the Weir Minerals website or on CD from your local sales office.

The Weir Minerals Catalogue wsCAT was developed by the Pump Technology Centre and is an integrated browser of two modules :

Pump performance curves, which are downloadable and unlocked by obtaining a key obtained via email from your local sales office, and

Technical reference which, due to file size, is only available on the CD version.

The technical reference information includes application data, drawings, engineering data, marketing data and operation and maintenance manuals.



Weir Minerals has the products and geographical presence to service all the major minerals markets around the world.



Market leading products

Weir Minerals has an advanced product range incorporating market leading brands covering virtually any application, in any environment.

The Weir Minerals brands :

WARMAN®

Centrifugal Slurry Pumps

GEHO®

PD Slurry Pumps

CAVEX®

Hydrocyclones

ISOGATE®

Slurry Valves

VULCO®

Wear Resistant Linings

Geographical footprint

Weir Minerals has the geographical presence to service all the major minerals markets around the world. This global supply capability provides a competitive advantage in this relatively fragmented market.

Weir Minerals has operations across:

- North America
- Europe
- South America
- Australasia
- Africa

Customer profile

Our customers range from the world's largest minerals and mining multinationals to single site coal producers.

Weir Minerals capability supports an array of customer specifications with products easily adaptable to meet specific process requirements.

We build close, long term partnerships through which we are able to help customers achieve process efficiencies.

Weir Minerals customers include:

- Alcoa
- Barrick
- Codelco
- De Beers
- Newmont
- WMC
- Anglo-American
- BHP-Billiton
- CVRD
- Grupo Mexico
- RTZ

We support customer operations worldwide with consistent products and local engineering expertise. As part of the Weir Group, we have the reach and resource to build close, long term relationships with all our customers, helping them to achieve ...

The Lowest Cost of Ownership

Top: Warman AH Heavy Duty Slurry Pumps in Finland.

Next: A Geho Piston Diaphragm slurry pump at Pacific Power.

Next: IsoGate WS slurry gate valves ready for shipping to a customer in South America.

Next: A cluster of Cavex hydrocyclones used in an Australian gold mine.

Bottom: Vulco Trommel for a



WARMAN® Centrifugal Slurry Pumps
GEHO® Positive Displacement Slurry Pumps
CAVEX® Hydrocyclones
ISOGATE® Slurry Valves
VULCO® Wear Resistant Linings

For further information on any of these products or
Total Care product support services contact your
nearest sales office or visit:

www.weirminerals.com

European Sales Offices :

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<i>Finland</i>	+358 3 877 350
<i>France</i>	+33 4 72 81 72 72
<i>Germany</i>	+49 7062 95290
<i>Hungary</i>	+36 34 314 794
<i>Netherlands (BeNeLux)</i>	+31 77 3272 840
<i>Netherlands (Geho)</i>	+31 77 3895 200
<i>Italy</i>	+39 02 92 44 3201
<i>Poland</i>	+48 12 632 8469
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